

Date: Thursday, 3/9/2006 11:48:19 AM  
 User: Linda Lacelle

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : BLADE FITTING  
 Job Number : 26189  
 Estimate Number : 12299  
 P.O. Number : N/A Part Number : D3488041  
 This Issue : 3/9/2006 S.O. No. : N/A Drawing Number : D3488 REV A  
 Prsht Rev. : NC Project Number : N/A  
 First Issue : N/A Type : MACHINED PARTS Drawing Revision : A  
 Previous Run : N/A Material : N/A  
 Written By : SEE COMMENT BELOW Due Date : 3/16/2006 Qty: 3/1 Um: Each  
 Checked & Approved By : SEE ABOVE USER & DATE  
 Comment : Est Rev:A New Issue 06-02-28 JLM

## Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 D6103003 alum billet



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Alluminum Round Billet D6103-003

Batch: B25806

06-03-09 (3)

2.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn as per Dwg DSK 101 & Folio FA625

2-Deburr

06-03-09 (3)

3.0 QC2 INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

06-03-09 (3)

4.0 HAAS1 HAAS CNC VERTICAL MACHINING #1



Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine as per Folio FA625 & Dwg D3488-1

2-Deburr

Remove SHARP Edge at largest

06-03-09 (3)

5.0 QC2 INSPECT PARTS AS THEY COME OFF MACHINE





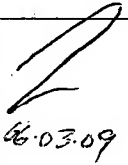


Comment: INSPECT PARTS AS THEY COME OFF MACHINE

06-03-09 (3)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: 2 Date: 06/03/31  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
06.03.09	4	- 2 parts scrap - jig was crooked, needed to be skimmed - dimension 1.417 not parallel		- jig was skimmed - scraped parts		 06.03.09		 06.03.09

NOTE: Date & initial all entries

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Job Number:



Seq. #:	Machine Or Operation:	Description :
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6.0	QC8	SECOND CHECK
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Comment: SECOND CHECK

*ML 06/03/10*

1

7.0	HAND FINISHING1	HAND FINISHING RESOURCE #1
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Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

*a.m 06/03/10*

8.0	POWDER COATING	POWDER COATING
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Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

*ML DL 06/03/27*  
*a.m 06/03/10*

③

9.0	QC3	INSPECT POWDER COAT/CHEMICAL CONVERSION
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Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

*06-03-27*

3

10.0	ALS71032225	INSERT
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Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Pick:.

Qty Part Number Description Batch

4 ALS71032-225 Insert *M 14576*

*a.m 06-03-30*

②

11.0	HAND FINISHING1	HAND FINISHING RESOURCE #1
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Comment: HAND FINISHING RESOURCE #1

Install Inserts as per Dwg D3488

*a.m 06-03-30*

③

12.0	QC5	INSPECT WORK TO CURRENT STEP
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Comment: INSPECT WORK TO CURRENT STEP

*ML 06 03 30*

③

13.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: *EP*

*ML 06 03 (30)*

③

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: DP Date: 06/03/13  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 3/9/2006 11:48:19 AM  
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Drawing Name: BLADE FITTING

Job Number: 26189

Part Number: D3488041

Job Number:



Seq. #:

Machine Or Operation:

Description :

14.0

DC

DOCUMENT CONTROL



Comment: DOCUMENT CONTROL  
Inspection Level 21

*SP* 06/03/31 (3)

Job Completion



*in* 06.03.30

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**DART AEROSPACE USA, INC.**  
PORT HADLOCK, WA

DESIGN		DRAWN BY		DART AEROSPACE USA, INC.	
P41		P41		PORT HADLOCK, WA	
CHECKED		APPROVED		DRAWING NO.	
[Signature]		[Signature]		DSK 101	
DATE				TITLE	
05.12.21				D3488-1/-2 TURNING DETAIL	
A		05.12.21		NEW ISSUE	
				REV. A	
				SHEET 1 OF 1	
				SCALE	
				1:3	

Technical drawing of a mechanical part, showing front and side views with dimensions.

**Front View Dimensions:**

- Outer diameter:  $\phi 3.346$
- Inner diameter:  $\phi 3.125$
- Inner diameter (bottom):  $\phi 2.780$
- Inner diameter (bottom):  $\phi 2.530$
- Inner diameter (bottom):  $\phi 2.150$
- Chamfer:  $0.125 \times 45^\circ$  CHAMFER

**Side View Dimensions:**

- Overall length:  $12.50$
- Length to first step:  $9.250$
- Length to second step:  $8.000^{+0.030}_{-0.000}$
- Step height:  $0.125$
- Step height:  $0.040^{+0.000}_{-0.004}$
- Radius:  $R0.032$

- 1) MATERIAL: MAKE FROM ALUMINUM 7075-T7351 ROUND BAR PER QQ-A-225/9  
(REF. DART MATERIAL SPEC M7075T73R)
- 2) FINISH: NONE
- 3) BREAK UNMARKED SHARP EDGES 0.010 TO 0.020
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED





DART AEROSPACE LTD		Work Order: P601-622
Description: Blade Fitting		Part Number: 03488-1
Inspection Dwg: 03488	Rev: 1	Page 1 of 2

# FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☒ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø 484		Ø.488	/			
1.180		1.179	/			
3.150		3.150	/			
1.180		1.179	/			
3.070		3.072	/			
Ø .508		Ø.509	/			
R .062		R.062	/			
.590		.593	/			
1.005		1.004	/			
3.500		3.500	/			
Ø .508		.510	/			
.750		.749	/			
1.500		1.499	/			
11.18	+ .030	11.165	/			
8.000	+ .030 - .000	8.001	/			
.125		.126	/			see attached e-mail
2.620		2.615	/			
17°		17°	/			
.793		.797	/			
97°		97°	/			
1.301		1.299	/			
1.417		1.428	/			
1.802		.800	/			

Measured by: SD	Audited by: Jml	Prototype Approval: RA
Date: 06.03.08	Date: 06/03/09	Date: 06/03/10

Rev	Date	Change	Revised by	Approved
A		New Issue	KJ/RF	

2545



**Peter Hum**

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**From:** David Shepherd [davids@dartaero.com]  
**Sent:** Thursday, March 09, 2006 1:15 PM  
**To:** Peter Hum  
**Cc:** Jean Luc Menard; Linda Lacelle  
**Subject:** Re: d3488 blade fitting

Peter,

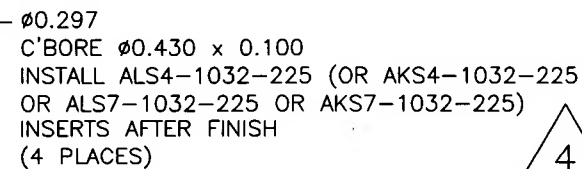
I think it is acceptable to remove this knife edge by sanding/buffing/grinding as long as we have no stress raisers left and the part looks good when this operation has been completed. As we have already discussed, we will be changing the turning to prevent this from happening in the future.

David

----- Original Message -----

From: "Peter Hum" <phum@dartaero.com>  
To: "David Shepherd (E-mail)" <davids@dartaero.com>  
Sent: Thursday, March 09, 2006 10:54 AM  
Subject: d3488 blade fitting

> Hi David,  
>  
> I was examining the 1st off of the blade fitting and I found that the  
> machining in accordance with the turning detail will leave a knife edge.  
>  
> (see my attached picture)  
>  
> I've talked to JLM and have faxed you a possible solution  
>  
> Peter Hum  
> Mechanical Designer  
>  
> DART Aerospace Ltd.  
> Email...phum@dartaero.com  
> Phone...613-632-3336  
> Fax.....613-632-4443  
>  
>



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